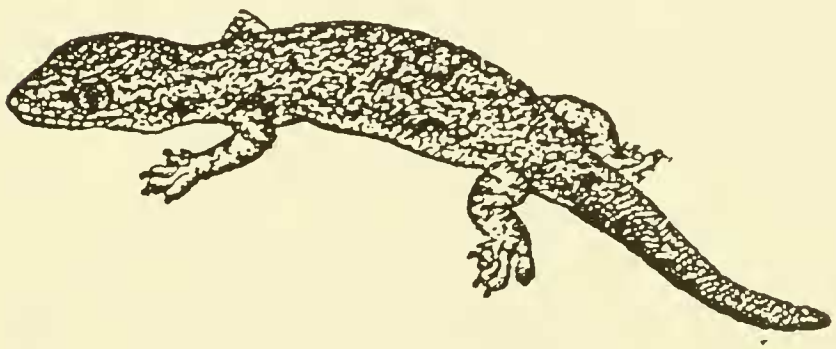
THREE NEW SUBSPECIES OF *HEMIPHYLLODACTYLUS YUNNANENSIS* (BOULENGER) FROM CHINA (LACERTIFORMES: GEKKONIDAE)

Kai-ya Zhou, Yue-zhen Liu, and Guang-ping Yang
In: Acta Zootaxonomica Sinica 6(2):202-209, pl. 1 [Apr. 1981]



Translated by

Hidetoshi Ota .
Tropical Biosphere Research Center
University of the Ryukyus

SMITHSONIAN
HERPETOLOGICAL INFORMATION
SERVICE
NO. 110

1996

SMITHSONIAN HERPETOLOGICAL INFORMATION SERVICE

The SHIS series publishes and distributes translations, bibliographies, indices, and similar items judged useful to individuals interested in the biology of amphibians and reptiles, but unlikely to be published in the normal technical journals. Single copies are distributed free to interested individuals. Libraries, herpetological associations, and research laboratories are invited to exchange their publications with the Division of Amphibians and Reptiles.

We wish to encourage individuals to share their bibliographies, translations, etc. with other herpetologists through the SHIS series. If you have such items please contact George Zug for instructions on preparation and submission. Contributors receive 50 free copies.

Please address all requests for copies and inquiries to George Zug, Division of Amphibians and Reptiles, National Museum of Natural History, Smithsonian Institution, Washington DC 20560 USA. Please include a self-addressed mailing label with requests.

TRANSLATOR'S NOTES

In preparing the English version from the original (in Chinese, with English summary), I attempted to make as literal a translation as possible. However, a few minor changes and/or explanations were necessary (marked with an asterisk and number); these remarks are in the endnotes following the references.

I thank T. Hikida, Y. Shibata, and M. Ota for their assistance during the process of preparation of the present manuscript.

INTRODUCTION

From 1975 to 1979, we obtained a total of 640 specimens of *Hemiphyllodactylus yunnanensis* (Boulenger) that had been collected from nine localities within Yunnan Province and two localities within Guizhou Province. This paper reports the three new subspecies discovered during the sorting process of this collection. All type specimens are deposited in the Department of Biology, Nanjing Normal College.

Hemiphyllodctylus yunnanensis yunnanensis (Boulenger) (Plate I:1)

The following definition is based on a total of 249*1 specimens collected from Kunming, Lijiang, Chuxiong, Chengjiang, Gejiu, and Yao'an. Chin shields distinct; hindlimb longer than half of axilla-groin distance; dilated portions of digits bearing paired scansors, digits II-V usually with 3-4-4-3 or 3-4-4-4 pairs in hand, 3-4-4-4 pairs in foot*2, fourth pairs on digits III-V of hand not reaching outer margins of the digits (Fig. 1); diameter of ear opening 0.5-1.0 mm, about 20-43% of eye diameter.

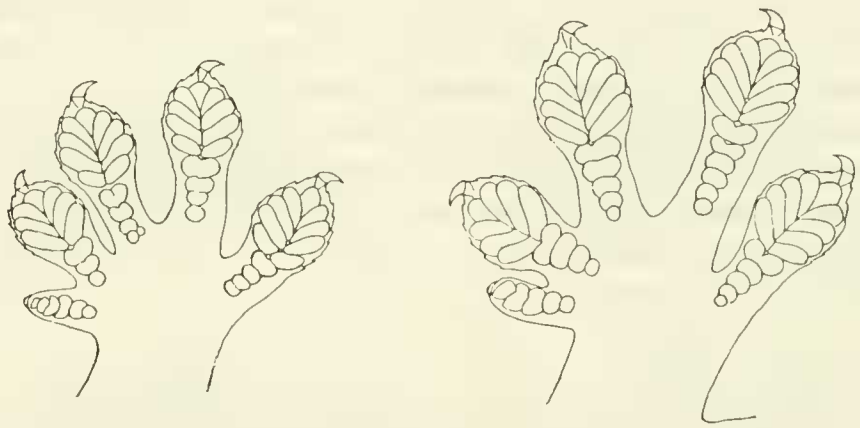


Fig. 1. Hand (left) and foot (right) of *Hemiphyllodactylus yunnanensis yunnanensis*.

Except for Yao'an sample, upper margin of rostral mostly notched, and scales posterior to supranasal usually not much enlarged (Fig. 2, Table 1).

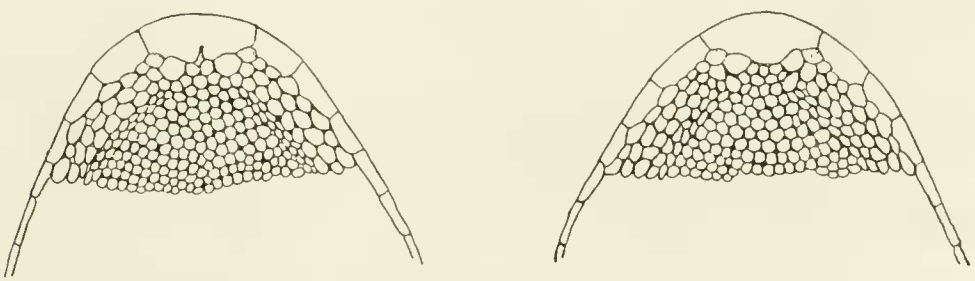


Fig. 2. Dorsal view of snouts of *Hemiphyllodactylus yunnanensis yunnanensis* from Kunming (left) and Yao'an (right).

Table 1. Scale variation on the dorsal surface of the snout in *Hemiphyllodactylus yunnanensis yunnanensis*

Localities	Notch on the upper margin of rostral				Distinctly enlarged scale posterior to supranasal			
	Present		Absent		Present		Absent	
	n	%	n	%	n	%	n	%
Yao'an	15	27.3	40	72.7	44	80.0	11	20.0
Kunming	34	100.0	0	0	2	5.9	32	94.1
Lijiang	93	98.9	1	1.1	25	26.6	69	73.4
Chuxiong	39	97.5	1	2.5	0	0	40	100.0
Gejiu	25	100.0	0	0	1	4.0	24	96.0
Chengjiang	1	100.0	0	0	0	0	1	100.0

Hemiphyllodactylus yunnanensis longlingensis Zhou *et* Liu, new subspecies (Plate I:2)

Holotype: Male (No.79003) collected from around Longling Junior High School in Longling County, Yunnan Province (alt. 1530 m), in August 1979. Allotype: Female (No.79066), sampling locality and date same as holotype. Paratypes: 32 males and 47 females, sampling locality same as holotype, collected in August 1979.

Diagnosis - Numbers of scansor pairs on dilated portions of digits II-V usually 3-3-3-3 in hand, 3-4-4-4 in foot*2, fourth pairs on digits III-V of foot not reaching outer margins of the digits (Fig. 3); diameter of ear opening 0.7-1.0 mm, about 26-48% of eye diameter. The number of subdigital scansors of this subspecies are smallest among those of the currently recognized subspecies of *H. yunnanensis*.

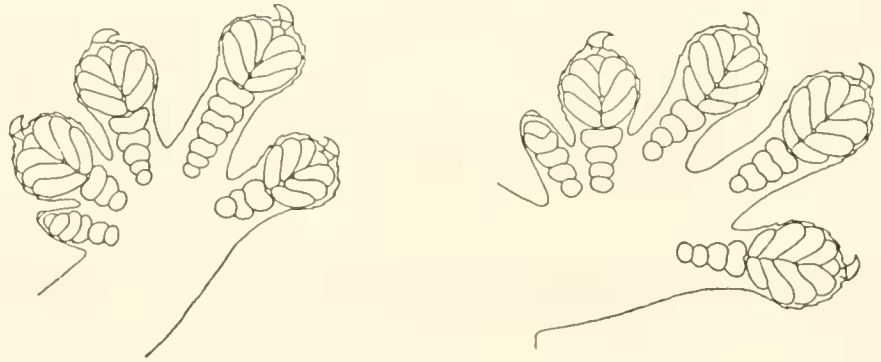


Fig. 3. Hand (left) and foot (right) of *Hemiphyllodactylus yunnanensis longlingensis*.

Description - Snout about 1.5-2.1 times as long as eye diameter, slightly longer than distance between eye and ear opening; head and body longer than tail, its length about 1.1-1.4 times as great as length of tail; hindlimb length 58-73% of axilla-groin distance. Measurements are given in Table 2.

Table 2. Measurements (in mm) of *Hemiphyllodactylus yunnanensis longlingensis*.

	Total length	Ear opening	Snout-anterior margin of eye	Snout-posterior margin of ear opening	Axilla-groin distance	Forelimb length	Hindlimb length
Holotype No.79003	74.5 (41.5 + 33)	0.7	4	9	22.5	11.5	16.0
19 males	66(37+29)-77.5(40.5+37)	0.7-1	4-5	8-9.5	18.5-22.5	10-12	13-16.0
19 females	73(39+34)-83(46-37)	0.7-1	4-5	9-10.0	20.0-23.5	10-12	13-16.5

Rostral wider than high, upper margin mostly shallowly notched medially; supralabials 7-10, infralabials 8-11; chin shields arranged in arc, medial pair largest, followed by one smaller scale, 0.5-0.9 mm in diameter (Fig. 4), this scale lacking in a few specimens; male with 13-28 preanal-femoral pores.

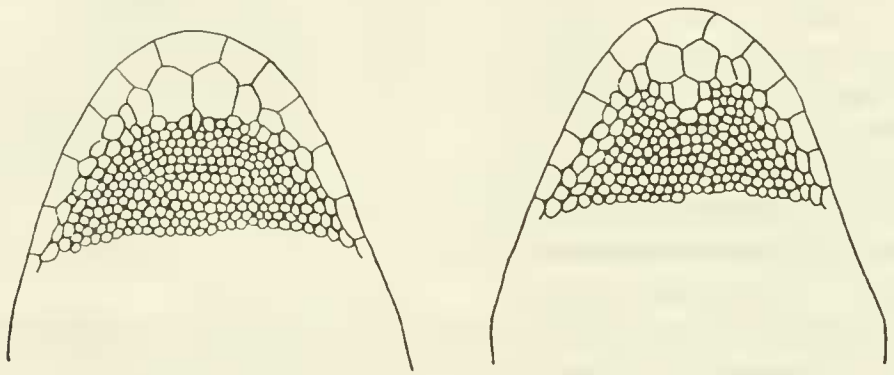


Fig. 4. Chin shields of *Hemiphyllodactylus yunnanensis yunnanensis* (left) and *H. y. longlingensis* (right).

Dorsal ground color of preserved specimen gray or brownish gray; dark brown marking running from tip of snout through eye and ear opening to shoulder; each side of dorsum with two transverse rows of dark spots, one just aside of middorsal region and the other on flank; spots of neighboring rows occasionally fused to each other, forming short dark wavy markings; darkness of such spots and frequency of their fusion highly variable, making dorsal pattern highly variable as well, such as those consisting of longitudinal rows of dark spots, a row of transverse wavy bands, dark reticulations, and indistinct markings only; dorsal surface of base of tail with one U-shaped white marking; dorsal surface of tail with transverse dark brown bands, or a transverse row of large black spots; venter of body flesh color or gray; venter of tail reddish orange (50% of males and 60% of females) or light gray.

Ecological data - All adult females collected from Longling from the middle to late August had already oviposited and possessed only ovarian follicles, 1.7-1.8 mm in diameter. The testes of adult males measured about 3.5×7 mm. Of the adult females collected from Changyuan in May, however, about half possessed eggs, 6×8 - 6×8.5 mm in size, at the upper end of oviducts, whereas the remainder had already oviposited, and possessed only

ovaran follicles, about 2 mm in diameter. The adult males of this sample series had testes of about 3.5×6.3 mm.

About one fifth of the specimens from Longling had ticks on the ventral surface of the body and limbs, but the ticks were few on the dorsal surface. As to the specimens from Changyuan, about one seventh bore ticks on the ventral surface of the body and limbs, as well as around the orbits.

Distribution - This subspecies also occurs in Changyuan of the Yunnan Province.

Hemiphyllodactylus yunnanensis jinpingensis Zhou *et* Liu, new subspecies (Plate I:3)

Holotype: Male (No. 78849) collected from around Jinping First Junior High School in Jinping County, Yunnan Province (alt. 1260 m), in July 1978. Allotype: Female (No.78844), sampling locality and date same as holotype. Paratypes: 19 males and 21 females, sampling locality same as holotype, collected in July 1978.

Diagnosis - Numbers of scansor pairs on dilated portions of digits II-V usually 3-4-4-4 in hand, 4-5-5-5 in foot[*2], fifth pairs on digits III-V of foot not reaching outer margins of digits (Fig. 5); diameter of ear opening 0.5-0.7 mm, about 19-27% of eye diameter. The number of subdigital scansors of this subspecies is greater than those of *H. y. longlingensis* and the nominotypical subspecies. From *H. y. dushanensis*, *H. y. jinpingensis* differs in having relatively small fifth scansor pairs on digits III-V, which do not reach outer margins of digits.

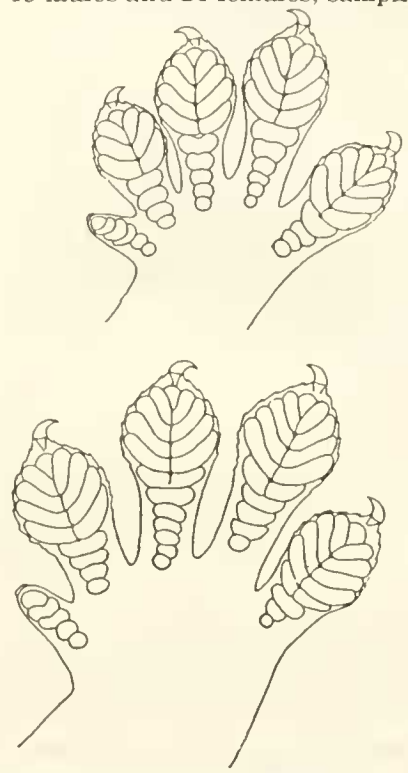


Fig. 5. Hand (left) and foot (right) of *Hemiphyllodactylus yunnanensis jinpingensis*.

Description - Snout about 1.7-2 times as long as eye diameter, longer than distance between eye and ear opening; head and body as long as, or longer than tail, its length about 1-1.39 times as great as length of tail; hindlimb length 60-76% of axilla-groin distance. Measurements are given in Table 3.

Rostral wider than high, upper margin notched medially; supralabials 8-10, infralabials 9-11; chin shields arranged in arc, medial pair enlarged, usually followed by a row of slightly enlarged scales; male with 24-31 preanal-femoral pores.

Color of preserved specimen brownish gray; one indistinct dark marking running from tip of snout through eye and upper margin of ear opening to shoulder; dorsal surface of body with some 10 transverse dark wavy bands; dorsal surface of base of tail with one U-shaped white marking; dorsal surface of tail with about 10 transverse dark bands.

Ecological data - More than half of the adult females collected at Jinping from the middle

to late July had eggs, 4.5×5.1 - 5×8 mm in size, at the upper end of oviducts. The testes of the adult males measured about 3.5×5.5 mm. Sixty-five percent of the adult females collected at Xingyi in Guizhou Province during June and July by the Chengdu Institute of Biology, Academia Sinica, had eggs.

About one fourth of the specimens collected at Jinping had ticks on the ventral surface of the body and limbs.

Distribution - Judging from the specimens deposited in our department and Chengdu Institute of Biology, Academia Sinica, this subspecies also occurs in Xingyi, Anlong and Huishui of Guizhou Province, and Dayaoshan of Guangxi Province. The populations of *H. yunnanensis* in Guangxi and Guizhou Provinces, reported by Liu and Hu (1962) and Hu *et al.* (1973), belong to this subspecies.

Table 3. Measurements (in mm) of *Hemiphyllodactylus yunnanensis jinpingensis*.

	Total length	Ear opening	Snout-anterior margin of eye	Snout-posterior margin of ear opening	Axilla-groin distance	Forelimb length	Hindlimb length
Holotype No.78849	86.5 (44.5 + 42)	0.6	4.5	10.0	21.5	11.0	15.5
10 males	69(37+32)-92(46+46)	0.5-0.6	4.0-5	9.0-10.5	18.0-23.5	10-11.5	13-16.0
10 females	85.5(49+36.5)-96.5(53.5+43)	0.5-0.7	4.5-5	10.5-11.0	24.0-28.5	11-12.0	16-17.5

Hemiphyllodactylus yunnanensis dushanensis Zhou *et* Liu, new subspecies (Plate I:4)

Holotype: Male (No.78999) collected from around Dushan Junior Highschool in Dushan County, Guizhou Province (alt. 970 m), in June 1978. Allotype: Female (No.78984), sampling locality and date same as holotype. Paratypes: 28 males and 31 females, sampling locality same as holotype, collected in June 1978.

Diagnosis - Numbers of scansor pairs on dilated portions of digits II-V usually 3-4-4-4 in hand, 4-5-5-5 in foot*2, fifth pairs on digits III-V of foot relatively large compared to *H. y. jinpingensis*, extending to outer margin of digits in most specimens (Fig. 6); diameter of ear opening 0.3-0.6 mm, about 13-25% of eye diameter; dorsal surface without pattern, or with only a few irregular dark markings.

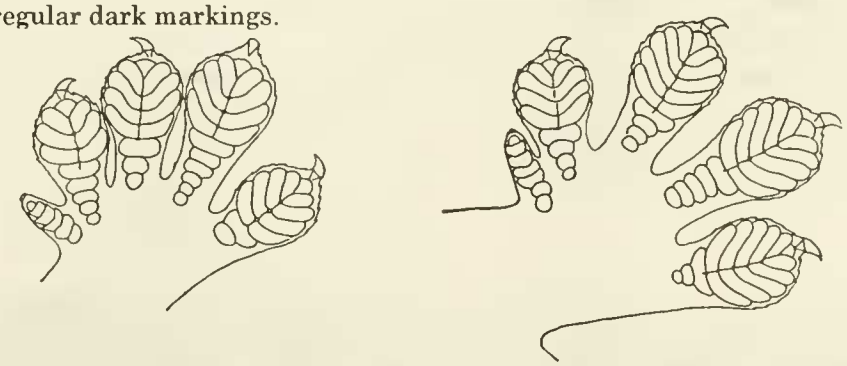


Fig. 6. Hand (left) and foot (right) of *Hemiphyllodactylus yunnanensis dushanensis*.

Description - Snout about 1.4-2.2 times as long as eye diameter, slightly longer than distance between eye and ear opening; head and body longer than tail, its length about 1.06-1.28 times as great as length of tail; hindlimb length 61-77% of axilla-groin distance. Measurements are given in Table 4.

Table 4. Measurements (in mm) of *Hemiphyllodactylus yunnanensis dushanensis*.

	Total length	Ear opening	Snout-anterior margin of eye	Snout-posterior margin of ear opening*3	Axilla-groin distance	Forelimb length	Hindlimb length
Holotype No.78999	80 (44+36)	0.5	4.5	10	22.0	11.0	15.5
9 males	80(44+36)-89(46+43)	0.4-0.6	4-5.0	9-10	22-25.5	10.5-11	15-17.0
10 females	87(48+39)-96(51+45)	0.3-0.6	5-5.5	10-11	25-27.0	11.0-12	16-17.5

Rostral wider than high, upper margin notched medially; supralabials 9-12, infralabials 8-12; chin shields arranged in arc, medial pair enlarged, followed by a row of slightly enlarged scales; male with 22-29 preanal-femoral pores.

Color of preserved specimen brownish gray; one indistinct dark marking running from tip of snout through eye and upper margin of ear opening to shoulder; dorsal surface of body without dark pattern, or with a few indistinct dark irregular markings; dorsal surface of tail usually without distinct pattern, but more than 10 transverse dark bands in a few specimens.

Ecological data - More than half of the adult females collected at Dushan of Guizhou in June had eggs, 6.2×8.7 - 6.8×9.2 mm in size, at the upper end of oviducts. The testes of adult males measured about 3.5×5.5 mm.

About one fifth of the specimens from Dushan had ticks on the ventral surface of the body and limbs.

Fig. 7. Map showing the distribution of each subspecies of *Hemiphyllodactylus yunnanensis* in China. The solid circles, solid rectangles, dot in circles, and the solid triangle represent locality records of *H. y. yunnanensis*, *H. y. longlingensis*, *H. y. jinpingensis*, and *H. y. dushanensis*, respectively*4.

The distributions of the subspecies of *H. yunnanensis* in China are shown in Fig. 7.

Key to subspecies of *H. yunnanensis* in China

1(2) Number of scansor pairs on dilated portions of digits II-V of hand 3-3-3-3---------- ---------- *H. y. longlingensis* Zhou *et* Liu, new subspecies

2(1) Number of scansor pairs on dilated portions of digits II-V of hand 3-4-4-3 or 3-4-4-4

3(4) Number of scansor pairs on dilated portions of digits II-V of foot 3-4-4-4---------- ---------- *H. y. yunnanensis* (Boulenger)

4(3) Number of scansor pairs on dilated portions of digits II-V of foot 4-5-5-5

5(6) Fifth pairs of scansors on digits III-V of foot not extending to outer margin of digits----- ---------- *H. y. jinpingensis* Zhou *et* Liu, new subspecies

6(5) Fifth pairs of scansors on digits III-V of foot usually reaching outer margin of digits----- ---------- *H. y. dushanensis* Zhou *et* Liu, new subspecies

REFERENCES[*5]

Boulenger, G. A. 1900. Batrachians and reptiles from Perak. Ann. Mag. Nat. Hist. 6(7):189.

Boulenger, G. A. 1903. Descriptions of new lizards in the collection of the British Museum. Ann. Mag. Nat. Hist. 12(7):429-430.

Hu, S.-c., E.-m. Djao, and C.-c. Liu. 1973. A survey of amphibians and reptiles in Kweichow Province, including a herpetofaunal analysis. Acta Zool. Sinica 19(2):149-178 (in Chinese, with English summary)

Liu, C.-c., and S.-c. Hu, 1962. A herpetological report of Kwangsi. Acta Zool. Sinica 14 (suppl.):73-104. (in Chinese, with English summary)

Pope, C. H. 1935. The Reptiles of China. American Museum of Natural History, New York.

Wermuth, H. 1965. Liste der rezenten Amphibien und Reptilien. Gekkonidae, Pygopodidae, Xantusiidae. Das Tierreich 80. Walter de Gruyter & Co., Berlin.

TRANSLATOR'S ENDNOTES

1 In the original, the total number of specimens of *H. y. yunnanensis* examined is printed as 349. However, judging from the sum of local samples given in Table 1, it seems likely that the number is actually 249.

2 In the original, the number of scansor pairs on the dilated portions of digits are abbreviated, without explanations, as 3443-3444/3444 for *H. y. yunnanensis*, 3333/3444 for *H. y. longlingensis*, 3444/4555 for *H. y. jinpingensis*, and 3444/4555 for *H. y. dushanensis*. The explanations added to this translation are based on information provided in the corresponding figures and the key.

3 In the original, this column is headed as "Snout to posterior margin of eye". However, judging from values given therein as well as consistency with the format of other tables, this label must be corrected to the posterior margin of ear.

4 The locality names have been added to the map by the translator.

5 Of the publications listed below, only Hu *et al.* (1973) and Liu and Hu (1962) were directly cited in the text. The others may have been listed as the background for the present study.